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The latitude observations made at the same time were not entirely satisfactory, and will be repeated. They indicate, however, that the difference between the astronomical and geodetic latitude is not much above 1″ of arc. E. S. H.

THE RED SPOT ON *JUPITER.*

A very useful work could be done by any member of the Society who has the leisure for it, by computing the times when the meridian of *Jupiter* passing through the red spot was turned towards the earth, in the years *before* 1878 (the date of its discovery). The invaluable ephemerides for physical observations of *Jupiter* which are published annually by Dr. MARTH make this calculation a simple one for many years past. The drawings of the planet previous to 1878 should be examined, in order to study the appearance of the belt on which the red spot is situated and to detect the *first* appearance of a disturbance in this region. There is reason to believe that as early as 1857 DAWES described an appearance of the sort.

The present note is written to call attention to a very remarkable drawing of the planet made on January 5, 1870, by Professor MAYER (*Journal of the Franklin Institute*, February, 1870, page 136), which has escaped attention hitherto. This drawing shows an elliptical ring which strikingly suggests the red spot in form and position. It was central at 8^h, Bethlehem (Lehigh University) mean time, on January 5, 1870. So far as I know, the work suggested is not now in hand.

E. S. H.

TABLE OF CONSTANTS RELATING TO THE SUN AND TO THE MOON.

The following tables, reprinted from YOUNG'S *The Sun* and from NEISON'S *The Moon*, may be found convenient for reference.

A. J. B.

Solar Statistics.

(From YOUNG'S *The Sun*, page 278.)

Solar parallax (equatorial horizontal): 8.80″ ± 0.02″.

Mean distance of the sun from the earth: 92,885,000 miles; 149,480,000 kilometres.

Variation of the distance of the sun from the earth between January and June: 3,100,000 miles; 4,950,000 kilometres.

Linear value of 1″ on the sun's surface: 450.3 miles; 724.7 kilometres.

Mean angular semidiameter of the sun: 16′ 02.0″ ± 1.0″.

Sun's linear diameter: 866,400 miles; 1,394,300 kilometres.*

Ratio of the sun's diameter to the earth's: 109.3.

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* This may, perhaps, be *variable* to the extent of several hundred miles.

Surface of the sun compared with the earth: 11,940.

Volume, or cubic contents, of the sun compared with the earth: 1,305,000.

Mass, or quantity of matter, of the sun compared with the earth: 330,000 ± 3,000.

Mean density of the sun compared with the earth: 0.253.

Mean density of the sun compared with water: 1.406.

Force of gravity on the sun's surface compared with that on the earth: 27.6.

Distance a body would fall in one second: 444.4 feet; 135.5 metres.

Inclination of the sun's axis to the ecliptic: 7° 15′.

Longitude of its ascending node, 74°.

Date when the sun is at the node: June 4–5.

Mean time of the sun's rotation (Carrington): 25.38 days.

Time of rotation of the sun's equator: 25 days.

Time of rotation at latitude 20°: 25.75 days.

Time of rotation at latitude 30°: 26.5 days.

Time of rotation at latitude 45°: 27.5 days.*

Linear velocity of the sun's rotation at his equator: 1.261 miles per second; 2.028 kilometres per second.

Total quantity of sunlight: 6,300,000,000,000,000,000,000,000,000 candles.

Intensity of the sunlight at the surface of the sun: 190,000 times that of a candle flame; 5,300 times that of metal in a Bessemer converter; 146 times that of a calcium-light: 3.4 times that of an electric arc.

Brightness of a point on the sun's limb compared with that of a point near the centre of the disk: 25 per cent.

Heat received per minute from the sun upon a square metre, perpendicularly exposed to the solar radiation, at the upper surface of the earth's atmosphere (*the solar constant*): 25 calories.

Heat-radiation at the surface of the sun, per square metre per minute: 1,117,000 calories.

Thickness of a shell of ice which would be melted from the surface of the sun per minute: 48.5 feet; or 14.75 metres.

Mechanical equivalent of the solar radiation at the sun's surface, continuously acting: 109,000 horse-power per square metre; or 10,000 (nearly) per square foot.

Effective temperature of the solar surface (according to ROSSETTI): about 10,000° Cent.; or 18,000° Fahr.

Lunar Elements.

(From NEISON'S *The Moon*, page 567.)

TABLE III.

Synodical revolution: 29.5305887 days; $29^{d}\,12^{h}\,44^{m}\,2^{s}.684$.

Sidereal revolution: 27.3216614 days; $27^{d}\,7^{h}\,43^{m}\,11^{s}.545$.

Tropical revolution: 27.321582 days; $27^{d}\,7^{h}\,43^{m}\,4^{s}.68$.

Anomalistic revolution: 27.55460 days; $27^{d}\,13^{h}\,18^{m}\,37^{s}.44$.

Nodical revolution: 27.21222 days; $27^{d}\,5^{h}\,5^{m}\,35^{s}.81$.

Distance (mean): 60.27035 of earth's radii; 238,840.25 miles.

Distance (maximum): 252,972 miles.

Distance (minimum): 221,614 miles.

Diameter (mean): 31′ 8″.00; 2163.06 miles.

Diameter (maximum): 33′ 33″.20.

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* These last four numbers are somewhat doubtful, the formulæ of various authorities giving results differing by several hours in some cases.

Diameter (minimum): 29′ 23″.65.

Mass: $\left\{\begin{matrix}0.01228\\ \frac{1}{81.40}\end{matrix}\right\}$ of the earth's.

Revolution of perigee (mean): 3232.575 days; 8.8505 years.

Advance of perigee each year (mean): 40° 40′ 31″.1.

Revolution of nodes (mean): 6793.391 days; 18.5997 years.

Regression of nodes each year (mean): 19° 21′ 18″.3.

Maximum geocentric libration in longitude: 7° 53′ 51″.0.

Maximum geocentric libration in latitude: 6° 50′ 45″.0.

Maximum parallactic libration: 1° 1′ 35″.0.

Maximum geocentric libration: 10° 25′ 22″.0.

Maximum libration (total): 11° 25′ 30″.

Surface of the moon never seen: .4100.

Surface of the moon that is visible at one time or another: .5900.

Angle subtended by one degree of selenographical latitude and longitude at the centre of the moon's disc, when at its mean distance: 16″.566.

Length in miles of the same: 18.871.

Selenographical arc at centre of the moon's surface, subtending an angle of one second of arc: 3′ 37″.31.

Miles at the centre of the moon's disc subtending an angle of one second of arc: 1.139.

Surface: $\left\{\begin{matrix}0.074478\\ \frac{1}{13.43}\end{matrix}\right\}$ of the earth's.

Volume: $\left\{\begin{matrix}0.02033\\ \frac{1}{49.20}\end{matrix}\right\}$ of the earth's.

Density: $\left\{\begin{matrix}0.60419\\ \frac{1}{3.444}\end{matrix}\right\}$ of the earth's (water being unity).

Action of gravity at the surface: $\left\{\begin{matrix}0.16489\\ \frac{1}{6.065}\end{matrix}\right\}$ of the earth's.

Horizontal parallax (constant of): 57′ 2″.325.

Eccentricity of orbit (mean): 0.05490807.

Inclination of orbit (mean): 5° 8′ 39″.96.

Inclination of axis to ecliptic: 87° 27′ 51″.0.

Inclination of equator to ecliptic: 1° 32′ 9″.0.

Inequalities in the moon's longitude—
    Equation of the center (maximum): 6° 17′ 19″.06.
    Evection (maximum): 1° 16′ 27″.01.
    Variation (maximum): 39′ 30″.70.
    Annual equation (maximum): 11′ 9″.00.
    Parallactic equation (maximum): 2′ 4″.70.

Inequalities in the moon's latitude—
    Evection: 8′ 57″.37.
    Variation: 33″.44.

ANNOUNCEMENT OF THE DISCOVERY OF THE ROTATION PERIOD OF *MERCURY*, BY M. SCHIAPARELLI.

On the 8th of December, 1889, the *Accademia dei Lincei*,* of Rome, held a special sitting, which the King and Queen of Italy

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* GALILEO was one of the original members of this Academy (*dei Lincei*—of the Lynxes—of the sharp-eyed ones), which was named after the fantastic manner of the day.